

Report for Local Mathematics IMPAC Conferences Fall, 2005
at
CSU Dominguez Hills, December 3, 2005*
LAX LA Sheraton Gateway [LA regional meeting], November 19, 2005†
Sacramento State University, November 5, 2005

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This is a consolidated report for three separate local IMPAC Conferences for Mathematics held as part of the 2005-2006 IMPAC Program. A list of those attending each of the conferences is included at the end of this report.

Preface: Based in part on the recommendations from the 2004-2005 Mathematics IMPAC Report, most of the 2005-2006 Mathematics IMPAC Conferences are being held at local regional sites hosted by university mathematics departments at their campuses. Participants came from colleges and universities with relative proximity to each other within a local region. The similar agendas for the fall meetings were distributed and posted on line at the Math IMPAC web site:

<http://www.humboldt.edu/~mef2/IMPAC/MATHIMPAC.html>. This report covers the three conferences of Fall, 2005 held in November and December, 2005 at Sacramento State University, the LA Sheraton Gateway Hotel at LAX, and CSU Dominguez Hills.

When appropriate, this report will indicate special issues raised at particular conferences.

The meetings began by reviewing basic IMPAC Project information along with some of the recommendations from the 2005-2005 IMPAC Annual Report for the Mathematics discipline. Discussions covered the following developments (not necessarily in this order):

Lower Division Transfer Pattern (LDTP) Project.

An agreement adopted by the CSU Mathematics departments now provides a transfer pattern for community college students planning to major in mathematics at one of the CSU campuses. The LDTP (now available on the web) for Mathematics specifies that transferring math majors will have completed three semesters or four quarters of calculus plus all areas of general education except for Physical Science. In addition, individual campuses have determined local requirements related to the major including specifically how to complete the Physical Science general education for that campus.

A student making an agreement with a single CSU campus and completing this pattern before transfer will be given a priority for admission to the CSU (unless the campus is impacted). These students will have satisfied most of the lower division GE and major requirements, allowing completion of work for a degree in mathematics to proceed with less difficulty within two years.

The replacement of CAN at the CSU.

The CSU is in the process of replacing the CAN numbers used to identify courses statewide as generally comparable for articulation agreements with its own numbering system.

CAN numbers used to describe Mathematics courses still exist and will continue to be used by the CSU until they are replaced with a CSU Common Number. Descriptors are being written for the LDTP courses to go with these new numbers. All current articulation agreements will remain in place until replaced in some way by agreements based on this new numbering system.

The Current CSU Course Number Plan: As of now only five math courses are in the process to receive the new CSU numbers-Calculus 1, 2, & 3, Linear Algebra, and Differential Equations. Five mathematics

department chairs of the CSUs and one CC faculty member will meet before 2006 to determine the new course descriptors and, possibly, course objectives. Then these will be sent to the CSU math departments for discussion and approval. When there is 70% agreement on the descriptors, they will be adopted. This spring, 2006, a CC can then submit its course via OSCAR to a panel of CSU faculty who will decide to approve or not the course as an LDTP course. If approved the CC can then use the new CSU number. Initially there will be about 500 courses to review. In about 2008 other math courses will be added to the numbering system.

The 2004-2005 Mathematics IMPAC recommendations suggested that the CSU try to preserve as much as possible from the prior CAN system and consult with the Community Colleges on the new numbering system. One community college faculty member has been appointed to the CSU panel developing the new numbering system. There is currently no mechanism for the CSU to use the IMPAC project to facilitate communications related to the new numbering system.

In light of the termination of the CAN system, the CCC system will also be developing a common numbering system for its own internal use.

Transfer **major preparation at the University of California** campuses depends on articulation agreements at each of the UC campuses and has not been consolidated statewide at this time. There is a proposal to implement a more streamlined process for developing articulation agreements between CCC's and UC campuses, but at this time it will have no substantial effect since the UC campuses have agreements with all CCC's on articulation of mathematics courses.

[Dominguez Hills: It was noted that some Colleges have agreements with Universities allowing students to "contract" for transfer admission early and then have transfer admission guaranteed upon satisfying the terms of the agreement. It was not known how these types of agreements cover major preparation.]

Several suggestions from last year's recommendations for increasing communication between colleges were discussed.

ASSIST:

The May, 2004 IMPAC Mathematics Report recommended that ASSIST provide easy access by major to departmental web sites. The response by ASSIST has now been implemented for all UC and CSU campuses with a section called "Exploring Majors." The new web pages are managed by the articulation officers but the organization could be improved.

The display of the majors for Mathematics is organized by the title of the degree offered. This principle is confusing because a slight difference in the formal name of a degree results in separate listing. **The majors are listed in alphabetical order, not by content.** As a result the list is longer and more fragmented than is necessary or helpful.

After looking at the mathematics page all agreed it would benefit from a reorganization making information and connections to the campus Mathematics departments more direct and clear. One procedural suggestion was for ASSIST to have a discipline consultant or consulting panel of mathematicians to work with the articulation officers and/or the ASSIST designers for each major page.

Participants were encouraged to e-mail Eric Taggart at ASSIST with specific suggestions on how to reorganize the math major section (eric@assist.org).

[Dominguez Hills] A suggestion for a better layout was to classify all majors under broad categories such as "Applied Math", "Math Education", and "Pure Math" and then allow the student to see which schools offer such programs. Another suggestion was for ASSIST use a table comparable to the IMPAC Math contact table that lists the UC s and CSUs, a contact person, email address, phone number, math department web page, and transfer information web page.

Inter-university Communication: It was noted that CSU Math departments meet twice a year to discuss funding and any issues. This meeting might be an opportunity for greater inter-university communication if occasionally the UC math department chairs were invited to attend.

Contact Information: The IMPAC Math Web page now includes a “transfer assistance” page for college faculty, counselors, and potential mathematics majors. The page is maintained by Martin Flashman but is not completely current. It includes links to and/or contact information for each of the UC and CSU campuses including

1. the person(s) to contact for information regarding transfer, in particular, transfer with a mathematics major, and
2. The mathematics department homepage.

Also available at the IMPAC Math Web Page is a link to the CSU Math department chairs web site with current information for contacting each CSU Math department chair. [No comparable web page for the UC Math departments is known to exist.]

Math Department Web Pages:

A previous Math IMPAC recommendation suggested that university Mathematics departments provide needed information for transfer students on a specific transfer web page with the name of the faculty member(s) in charge of transfer advising for the department and that transfer web pages contain more uniform content information.

[Dominguez Hills] Recommendation: At the statewide IMPAC meeting there should be a demonstration of transfer web pages. A model mathematics transfer web page should be developed during 2005-6. Professor Flashman will try to have some composite web page for discussion at some of the later local meetings and the statewide meeting in May.

Discussions related to Course Information:

Bridge Courses:

Once again the meetings discussed the possibility of Bridge Courses for transfer students. There are still some alternatives for college students to take these courses prior to transfer. Summer courses are available at some of the Universities. College students can “cross register” at nearby UC/CSU’s for these courses and pay community college fees. A list of available university bridge is available at the IMPAC Math web page. Humboldt State and Sacramento State are starting to work on a proposal for an NSF grant to develop this type of course into a summer program.

[Dominguez Hills] **Geometry at the Community Colleges.** Though a course in geometry is required for freshman admission to the CSU, transferring students are not checked on this entrance standard. It came up in discussion that some CCC’s do not offer geometry (often because of low enrollments) while others require it as a pre-requisite to pre-calculus. Fran Manion (Santa Monica College) volunteered to survey the CCC’s to find out who requires geometry as a pre-requisite to pre-calculus and who offers a course in geometry.

Suggestion: Have the CMC³ or CMC³ - South form a discussion group on geometry as a prerequisite for the college algebra or a pre-calculus courses.

Integrated Math Secondary Credential Programs

Some CSU campuses now have integrated mathematics credential programs that provide a secondary

teaching credential at the completion of four year's of study along with the Bachelor's Degree. For a college student to take advantage of these programs interest must be recognized early and communication should be initiated with the CSU campus offering the program. [Sacramento State has such a program.]

Math Education Courses:

Most math education (math for elementary school teachers) courses are a two-semester sequence. At some CSUs (Humboldt and CSUN) the first semester is a lower division course (transferable) and the second semester is an upper division course that will not transfer. There is still debate about whether these courses should satisfy the GE requirement. This is an area where further discussion might be merited as there is now very little uniformity across the CSU on how these courses are articulated.

Linear Algebra Courses:

There were discussions at each of the meetings about the linear algebra offerings at the universities and colleges. These covered both content coverage and level of sophistication and expectations. There was much sharing of information and a recognition of common approaches was noted.

At the individual meetings those universities in attendance made detailed presentations about their specific programs highlighting some of the key features that would be important to transferring students.

Math Fair Days:

These events were one of several possibilities discussed and recommended in 2004-5 to improve connections for transferring students. Potential math majors might learn what they can do with a math major and gather information about various math bachelor degree programs. The agenda for these events could include other topics such as "star" lectures regarding current research and developments in mathematics, specific topics from upper division courses, and/or careers that use mathematics. Representatives from the CSU's and UC's mathematics departments could talk to students about transfer, differences between upper division and lower division, careers available for math majors, mathematics research, etc. The students themselves could give talks or presentations, have panel discussions, etc. Students who have already transferred could be available to give advice on the transition to four-year institutions.

Faculty would be needed to help organize, fund, promote, and provide transportation for students. Financial support might be available through the MAA/NSF, admissions offices at the CCs, CSUs, and UC's, and corporate sponsors such as textbook publishers, Microsoft, EXXON, etc.

Following the 2005 IMPAC Math recommendations, Professor Flashman met with the boards of CMC³ and CMC³-South over the summer. Subsequently both groups have passed resolutions to support the principle of Math Days. Fran Manion for CMC³-South and John Jacob for CMC³ have volunteered to work with Professor Flashman for IMPAC on these projects. Professor Flashman also organized a related panel presentation at the CMC³ Conference in Monterey in December.

This year the event might be piggybacked onto regional undergraduate math conferences funded by the NSF through the MAA. These conferences require no registration fees from students and provide lunch, allowing all lower division Math majors to experience research at the 4-year level. One such conference is scheduled at Sonoma State. Another conference is the Pacific Coast Undergraduate Math Conference to be held March 25th at Occidental College.

Professor Flashman has contacted the Sonoma State organizers and they are very open to the idea of incorporating some aspects of community college Math Day in their conference. Further discussions on this will continue.

Professor Flashman also approached the Occidental College organizers requesting they include a part of their program specifically aimed CCC students. They have declined for this year. Fran and Martin will approach them again and consider alternatives since the conference is certainly open to CCC students to attend and make presentations.

[Dominguez Hills] Fran Manion suggested piggy-backing a math fair with the CMC³ South spring meeting and asking the publishers to pay for this part of the meeting.

As an alternative to developing regional “Math Days” it had been suggested in during 2004-2005 that university campuses develop programs to involve prospective transfer students and college faculty in a university campus visit (“field trip”) from many “feeder” colleges. These were not discussed extensively but merit further attention.

Future Intersegmental Efforts:

Here are some of the issues under consideration.

Should IMPAC have a steering or coordinating committee? Currently there is no way to diversify its leadership. Should IMPAC have yearly local regional conferences of CCs and CSUs to keep each other abreast of curriculum changes in mathematics?

One idea is to hold a half-day meeting with lunch and an activity in the afternoon.

Face-to-face meetings are valuable but there must be respect for time commitments.

Next Statewide IMPAC Meeting:

The IMPAC statewide meeting is scheduled for May 1, 2006, at the Radisson at LAX. At that meeting proposals and recommendations based on this and other local meetings will be reviewed and final recommendations will be adopted.

Registered Participants:

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